

## Purchasing Receipts

[illegible]

[https://www.plexonline.com/AF4D221F-6542-46FC-8E65-410CB6187B03/Plexus\\_Control/Report\\_View\\_2.asp?Opener\\_Session\\_Key={AF4D221F-6542-46FC-8E65-410CB6187B03}&Session\\_Key={AF4D221F-6542-46FC-8E65-410CB6187B03}](https://www.plexonline.com/AF4D221F-6542-46FC-8E65-410CB6187B03/Plexus_Control/Report_View_2.asp?Opener_Session_Key={AF4D221F-6542-46FC-8E65-410CB6187B03}&Session_Key={AF4D221F-6542-46FC-8E65-410CB6187B03})

200 Aurora Industrial Pkwy  
Aurora OH 44202-8087  
330-995-5500  
cle.sales@mcmaster.com

Dart Aerospace Ltd  
1270 Aberdeen St  
Hawkesbury ON K6A 1K7  
Canada

Purchase Order  
**PO040154**

Order Placed By  
**Chantal Lavoie**

McMaster-Carr Number  
**4799296-03**

Page 1 of 1

07/05/2018

Line	Product	Ordered	Shipped
3	<b>2572T77</b> Ultra-Machinable 360 Brass Rod with Certification, 2-1/2" Diameter, 6 Feet Long	1 Each	1
Shipped separately from our Cleveland warehouse on 06/11			
1	<b>8572K35</b> White Delrin® Acetal Resin Rod, 3-1/2" Diameter, 3' Length	3 Feet	3
2	<b>2572T38</b> Ultra-Machinable 360 Brass Rod with Certification, 1/2" Diameter, 6 Feet Long	1 Each	1
4	<b>91030A445</b> Low-Strength Steel Flange Nut, Black-Oxide, 5/8"-18 Thread Size	10 Each	10
5	<b>92620A563</b> Zinc Yellow-Chromate Plated Hex Head Screw, Grade 8 Steel, 1/4"-28 Thread Size, 3/4" Long	1 Pack	1
6	<b>98381A508</b> Dowel Pin, Alloy Steel, 3/16" Diameter, 3/4" Long	1 Pack	1
7	<b>5051K271</b> F1 Felt Strip, Firm, Adhesive Backing, 10 Feet Long, 1-1/2" Wide, 1/2" Thick	1 Each	1
8	<b>1764A31</b> Spring-Loaded Pull Handle with Mounting Plate, Folding, Polished Zinc-Plated Steel, 3-1/8" Projection	8 Each	8
9	<b>8932K54</b> Oil-Filled 841 Bearing Bronze Rod, 2-1/4" Diameter, 6-1/2" Long	4 Each	4



Dart Aerospace Ltd.  
1270 Aberdeen St  
Hawkesbury, ON  
K6A 1K7  
Canada

Tel (613) 632-5200

# **PURCHASE ORDER** **PO040154**

**Supplier:** MCM001-VU  
McMaster-Carr Supply Co,  
P.O. Box 7690  
Chicago, IL 60680-7690 USA  
Phone: 330 995 5500  
Fax: 330 995 9600

**PO No:** PO040154  
**PO Date:** 6/11/18  
**Due Date:** 6/14/18

**Purchase Order**  
**Revision:**

**Revision Date:**

**Ship-To Contact:** Lavoie, Chantal  
clavoie@dartaero.com

**E-MAILED**  
**JUN 11 2018**

**Ship To:** 1270 Aberdeen Street  
Hawkesbury  
ON  
K6A 1K7 Canada  
Phone: 613-632-5200

**Via:** Ground  
**Pynt Terms:** 2% 10 Net 30  
**Freight Terms:**  
**Special Comments:**

## **Items**

Line Item	Part	Supplier Part No	Description	Status	Due Date	Order Quantity	Received Quantity	Balance	Unit Price (USD)	Extended Price
1	MDELNR3.500W	8572K35	Delrin Round Bar, White R3.500"	Firmed	6/14/18	3 ft	0 ft	3 ft	\$68.00/ft	\$204.00
2	MT-BRASS-C360-R0.500	2572T38 6 FT	Brass C360 Round Bar 0.500"	Firmed	6/14/18	6 ft	0 ft	6 ft	\$9.158333/ft	\$54.95
3 AT	MT-BRASS-C360-R2.500	2572T77 6FT	Brass C360 Round Bar 2.500"	Firmed	6/14/18	6 ft	0 ft	6 ft	\$117.94166/ft	\$707.65
4	91030A445	1/pk	Flange Nut receive ea	Firmed	6/14/18	10 Ea	0 Ea	10 Ea	\$3.51/Ea	\$35.10
5	92620A563	100/pk	Screw receive ea	Firmed	6/14/18	100 Ea	0 Ea	100 Ea	\$0.1269/Ea	\$12.69
6	98381A508	50/pk	Dowel Pin 3/16" X 3/4" (Mcmaster)	Firmed	6/14/18	50 Ea	0 Ea	50 Ea	\$0.156/Ea	\$7.80
7	RBE350A91-2381-01-13	5051K271 10 ft	Felt Pad w/ Adhesive Back	Firmed	6/14/18	10 ft	0 ft	10 ft	\$7.75/ft	\$77.50
8	RBE350A91-2381-01-21	1764A31	Folding Pull Handles	Firmed	6/14/18	8 Ea	0 Ea	8 Ea	\$7.20/Ea	\$57.60
9	90935A148	100/pk	Pan Head Screw	Firmed	6/14/18	100 Ea	0 Ea	100 Ea	\$0.0348/Ea	\$3.48

100x sp 18-6-12

Items										
Line Item	Part	Supplier Part No	Description	Status	Due Date	Order Quantity	Received Quantity	Balance	Unit Price (USD)	Extended Price
10	MBRONZR2.250	8932K54 .54" per length	Bronze Round Bar 2.250" : MATERIAL: OIL IMPREGNATED SINTERED BRONZE ROUND BAR AS PER SAE 841 TYPE 1, CLASS A OR AMS 4805 OR ASTM B438 GRADE 1, TYPE 2 OR MIL-B-5687D TYPE 1, GRADE 1 receive ft	Firmed	6/14/18	2.16 ft	0 ft	2 ft	\$195.29629/ft	\$421.84
Line Item Note: 4 pcs of .54" = 2.16 ft										
Grand Total:										\$1,582.61

## Order Notes

## Procurement Quality Clauses

A005 RIGHT OF ENTRY

A016 PERSONNEL QUALIFICATION

A026 CERTIFICATION OF MATERIAL CONFORMANCE

A032 DOCUMENT SPECIAL REQUIREMENTS

A033 STATEMENT OF CONFORMITY/TEST RECORDS FOR NAS, AN and MS FASTENERS

A040 NOTIFICATION OF QUALITY ESCAPE

A041 QUALITY MANAGEMENT SYSTEM

A042 DART NOTIFICATION BY SUPPLIER

A043 RETENTION OF QUALITY DOCUMENTS

A048 COUNTERFEIT PARTS AVOIDANCE, DETECTION, MITIGATION AND DISPOSITION PROGRAM

A049 SUPPLIER AWARENESS



Terms & Condition of Purchasing(Suppliers) and Procurement Quality Clauses are an integral part of our AS9100 requirements. To learn in detail, please visit [www.dartaerospace.com](http://www.dartaerospace.com) for further explanation.

Plex 6/11/18 2:05 PM dart.lavoie.chantal

## White Delrin® Acetal Resin Rod 3-1/2" Diameter

Delivers tomorrow 10-12 pm  
\$204.00 Each  
8572K35



Material	Delrin® Acetal Plastic
Cross Section	Round
Shape	
Construction	Solid
Texture	Smooth
Color	White
Clarity	Opaque
Diameter	3 1/2"
Diameter	0" to +0.250"
Tolerance	
Tolerance Rating	Oversized
Length	3 ft.
Hardness	Rockwell M90
Hardness Rating	Hard
For Use Outdoors	No
Temperature	-20° to 180° F
Range	
Impact Strength	1.00 ft.-lbs./in.
Impact Strength	Good
Rating	
Tensile Strength	9,000 psi
Tensile Strength	Good
Rating	
Specifications Met	ASTM D6100, NSF/ANSI Standard 51 for Food Contact, NSF/ANSI Standard 61 for Drinking Water
Density	0.051 lbs./cu. in.
Coefficient of Friction	0.20
Dielectric Strength	435 V/mil
Water Absorption	0.30%
Coefficient of Thermal Expansion	$8.5 \times 10^{-5}$ in./in./°F
RoHS	Compliant

## Chantal Lavoie

---

**From:** David Duval  
**Sent:** Monday, June 11, 2018 1:22 PM  
**To:** Chantal Lavoie  
**Subject:** FW: RBE350A91-2381-01

Need receive routes for:

RBE350A91-2381-01-13 (McMaster Carr #5051k27) Need QTY4 of 19 feet long  
RBE350A91-2381-01-21 (McMaster Carr #1764A31) QTY8

Need to order:

McMaster Carr #90935A148 1 PACK of 100

Thanks.

**DAVID DUVAL**  
Production Engineering Supervisor

*mbianz R 2.250*

**From:** Michael Lee  
**Sent:** June-11-18 11:44 AM  
**To:** David Duval <dduval@dartaero.com>  
**Subject:** RE: RBE350A91-2381-01

Hey David,

I just took a look on McMaster, the P/N specified on the drawing is available.

5051K27

Might have just been a typo ?

Mike

**From:** David Duval  
**Sent:** Monday, June 11, 2018 11:23 AM  
**To:** Michael Lee <mlee1@dartaero.com>  
**Subject:** RE: RBE350A91-2381-01

Hi would you be able to help me this please



# Non-Ferrous Metal Works (SA) (Pty) Ltd

## EXTRUSION DIVISION

1 The Avenue East, Prospection, Kwa-Zulu Natal, South Africa Reg. No.: 1951/000559/07

Telephone: +27 (31) 902 7470 Fax: +25 (31) 902 8865

## TEST CERTIFICATE

<b>Customer</b> AVIVA METALS, INC. PO BOX 800818 HOUSTON TEXAS 77280 United States	Test Certificate Number Works Order Number Sales Order Number Delivery Note No Invoice Number Purchase Order No. Alloy Quantity Ordered Weight Despatched	COC022691 WO0021809 SO00559573 SO-DN00009007 SO-IN00309504 HOU-13191-KZ 360 8000 Lbs 4334.244 Lbs
<b>Description</b> 2-1/2" DIA X 12 FT ROUND BAR Free Cutting Brass HALF HARD	<b>Specifications</b> ASTM B16 C36000 [10-2015] ASTM B249 [17]	

## Mechanical/Physical Test Results

Size 1	Size 2	Area	Yield Strength		Tensile Strength		Elongation	Hardness		
mm	mm	mm <sup>2</sup>	Kg/mm <sup>2</sup>	PSI	Kg/mm <sup>2</sup>	PSI	%	Vickers	Brinell	Rockwell
20.00	0.00	314.20	28.48	40,492.80	37.87	53,855.43	33.00	0.00	0.00	61.70
19.99	0.00	313.89	28.73	40,857.23	38.07	54,135.83	32.50	0.00	0.00	61.70

## Chemical Composition

Charge Number	Cu	Zn	Fe	Mn	Al	Ni	Sn	Pb	Si	As	P	Te
E1501	61.220	35.191	0.280	0.000	0.000	0.100	0.300	0.890	0.000	0.000	0.000	0.000

Charge Number	Sb	Mg	Ti	Co	Cd	Sr	Cr	Cu	Other
E1501	0.019	0.000	0.000	0.000	0.000	0.000	0.000	0	0.000

**APPROVED**
3:36 pm, May 17, 2018  
ANITA MCGRAY, MTR Administrator

### Remarks

MATERIAL HAS PASSED THE  
 MERCUROUS NITRATE CRACK TEST  
 IN ACCORDANCE WITH ASTM B-154  
 SPECS [12] WHERE APPLICABLE

QUALITY  
 CONTROLLED  
 COPY

We certify that the material is free from mercury contamination  
 Signed for on behalf  
 Non-Ferrous Metal Works(SA) (PTY) Ltd

Quality Manager

2018/04/24

Date

Metallurgist



Ultra-Machinable 360 Brass Rod  
with Certification, 2-1/2" Diameter

2572177



Material	360 Brass
Cross Section Shape	Round
Construction	Solid
Appearance	Plain
Diameter	2 1/2"
Diameter Tolerance Range	-0.006" to 0.006"
Tolerance Rating	Standard
Yield Strength	15,000 psi
Fabrication	Cold Worked
Temper	H02
Temper Rating	1/2 Hard
Hardness	Rockwell B25
Hardness Rating	Soft
Certification	Material Certificate with Traceable Lot Number and Test Report
Heat Treatable	No
Specifications Met	ASTM B16
Density	0.307 lbs./cu. in.
Surface Resistivity	39.9 Ohms
Melting Point Temperature	1630° F
Modulus of Elasticity	14.0 ksi × 10 <sup>3</sup>



Thermal Conductivity	67 Btu/hr.-ft.-°F @ 68° F
Elongation	25%
Material Composition	
Copper	60-63%
Iron	0-0.35%
Lead	2.5-3.7%
Silicon	0-0.17%
Zinc	32.95-37.15%
Length Tolerance Range	-0.5" to 0.5"
Length	1/2 ft., 1 ft., 2 ft., 3 ft., 6 ft.
RoHS	Not Compliant

These rods come with a traceable lot number and test report. With the highest lead content of all the brass alloys, 360 offers the best machinability. Often called free-machining and free-cutting brass, it stands up to high-speed drilling, milling, and tapping operations with minimal wear on your tools. It's commonly used for gears, pinions, and lock components.

## SPECIFICATION CONTROL DRAWING

PURCHASE MATERIAL:

SPECIFICATION:

PART NUMBER:

EXAMPLE:

C360 BRASS

ASTM B16

MT-BRASS-C360-R-[D.DDD]

WHERE D.DDD IS DIAMETER IN INCHES

MT-BRASS-C360-R-0.250

TOLERANCES PER MANUFACTURER SPECIFICATIONS

REV.	DESCRIPTION	ECN #	DATE	BY	APPROVED
A	NEW ISSUE	17-732	17.11.22	VM	WM

<b>DART</b> AEROSPACE		Hamiltonburg, Ontario, Canada	
TITLE BRASS C360 ROUND BAR			
PART NO. MT-BRASS-C360-R		REV A	
DESIGN BY: VM 11/01/2017	CHKD BY: VM 11/01/2017	FRAGMENTS 11/01/2017	
QUANTITY: SAC 11/06/2017	DATE: 11/06/2017	SURFACES 11/06/2017	
APPROVED: 11/06/2017	DATE: 11/06/2017	UNLESS OTHERWISE SPECIFIED	
SCALE: NTS		WEIGHT: N/A	
SHEET 1 OF 1		COPYRIGHT © 2017 BY DART AEROSPACE LTD.	
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# MATERIAL RECEIPT INSPECTION FORM

MATERIAL: MT-Brass - C360-R2.500  
 DATE: 18/07/18

PO / BATCH NO.: P0040154/S093455

MATERIAL CERT REC'D: Yes  
 QUANTITY RECEIVED: 6'  
 QUANTITY INSPECTED: 6'  
 QUANTITY REJECTED: 0

THICKNESS ORDERED: 2.50"  
 THICKNESS RECEIVED: 2.500"  
 SHEET SIZE ORDERED: —  
 SHEET SIZE RECEIVED: —

DESCRIPTION	NCR (Check Y/N)		COMMENTS
SURFACE DAMAGE	Y	<u>(N)</u>	
CORRECT FINISH	<u>(Y)</u>	N	
CORROSION	Y	<u>(N)</u>	
CORRECT GRAIN DIRECTION	<u>(Y)</u>	N	
CORRECT MATERIAL PER M-DRAWING	<u>(Y)</u>	N	<u>ASTM B16</u>
CORRECT THICKNESS	<u>(Y)</u>	N	
PHOTO REQUIRED	Y	<u>(N)</u>	
CORRECT REF # TO LINK CERT	<u>(Y)</u>	N	<u>P0040154</u>
CORRECT MATERIAL IDENTIFICATION	<u>(Y)</u>	N	
CORRECT M# ON THE MATERIAL	<u>(Y)</u>	N	
DOES THIS MATERIAL REQUIRE ENGINEERING SIGN OFF	Y	<u>(N)</u>	
DOES THIS REQUIRE AN EXTRUSION REPORT	Y	<u>(N)</u>	

CUT SAMPLE PIECE OF MATERIAL AND PREFORM A HARDNESS CHECK. RECORD RESULTS BELOW					
	HRC	HRB	DUR A	DUR D	WEBSTER
TYPE OF MATERIAL					
SIZE OF TEST SAMPLE					
HARDNESS / DUROMETER READING					

testers located in the Quality Office

QC 18 INSPECTION		ENGINEERING SIGNOFF (if required)	
INSPECTED BY: <u>AT</u>	SIGNED OFF BY: _____		
DATE: <u>18/07/18</u>	DATE: _____		

Attach this inspection sheet with the corresponding material cert and remit to be scanned and received in